



# REMOTE SENSING

Read the General Rules in the manuals and on [www.soinc.org](http://www.soinc.org) as they apply to every event.

1. **DESCRIPTION:** Participants will use remote sensing imagery, science and mathematical process skills to complete tasks related to an understanding of the **Earth's Hydrosphere**.

**A TEAM OF UP TO:** 2

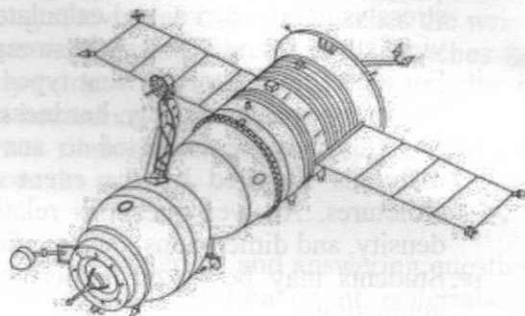
**IMPOUND:** No

**APPROXIMATE TIME:** 50 Minutes

2. **EVENT PARAMETERS:** Each team may bring five 8.5" x 11" two-sided sheets of paper containing information in any form and from any source. Each participant may bring a metric ruler, a protractor, a triangle, a **magnifying glass**, any kind of (non-graphing) calculator, **and other measuring devices**.

3. **THE COMPETITION:** Students should understand concepts and terms related to how remote sensing technologies are used to record data and monitor changes in the atmosphere and hydrosphere using measurements of:

- a. Atmospheric temperature and temperatures of oceans, inland seas and bodies of fresh water
- b. Greenhouse gases in the atmosphere including water vapor, carbon dioxide, methane and nitrous oxide
- c. Changes in vegetative cover
- d. Changes in sea level and ice elevation
- e. Other changes in geological, hydrological and in man-made features associated with bodies of water portrayed on a remote sensing image
- f. Students should also be familiar with principles of satellite imagery including the electromagnetic spectrum, interactions between electromagnetic energy and the atmosphere/hydrosphere, and NASA Earth Observation Missions related to monitoring of the atmosphere/hydrosphere.



4. **SAMPLE ACTIVITIES:**

- a. Compare a remote sensing image of a glacier with a similar image acquired earlier to determine changes in the area and depth of ice that have taken place in the elapsed time.
- b. Use a remote sensing image to evaluate damage to residential land use and transportation infrastructure caused by flooding or reservoir impoundments.
- c. Use time-lapsed remote sensing imagery to track the path of an oil spill and predict its effect on local wetland regions.

5. **SCORING:** Teams with the highest number of correct responses will be the winners. Selected questions or question sets may be used as Tiebreakers.

**Recommended Resources:** All reference and training resources including the **Remote Sensing CD** are available on the Official Science Olympiad Store or Website at <http://www.soinc.org>